



Fig. 1

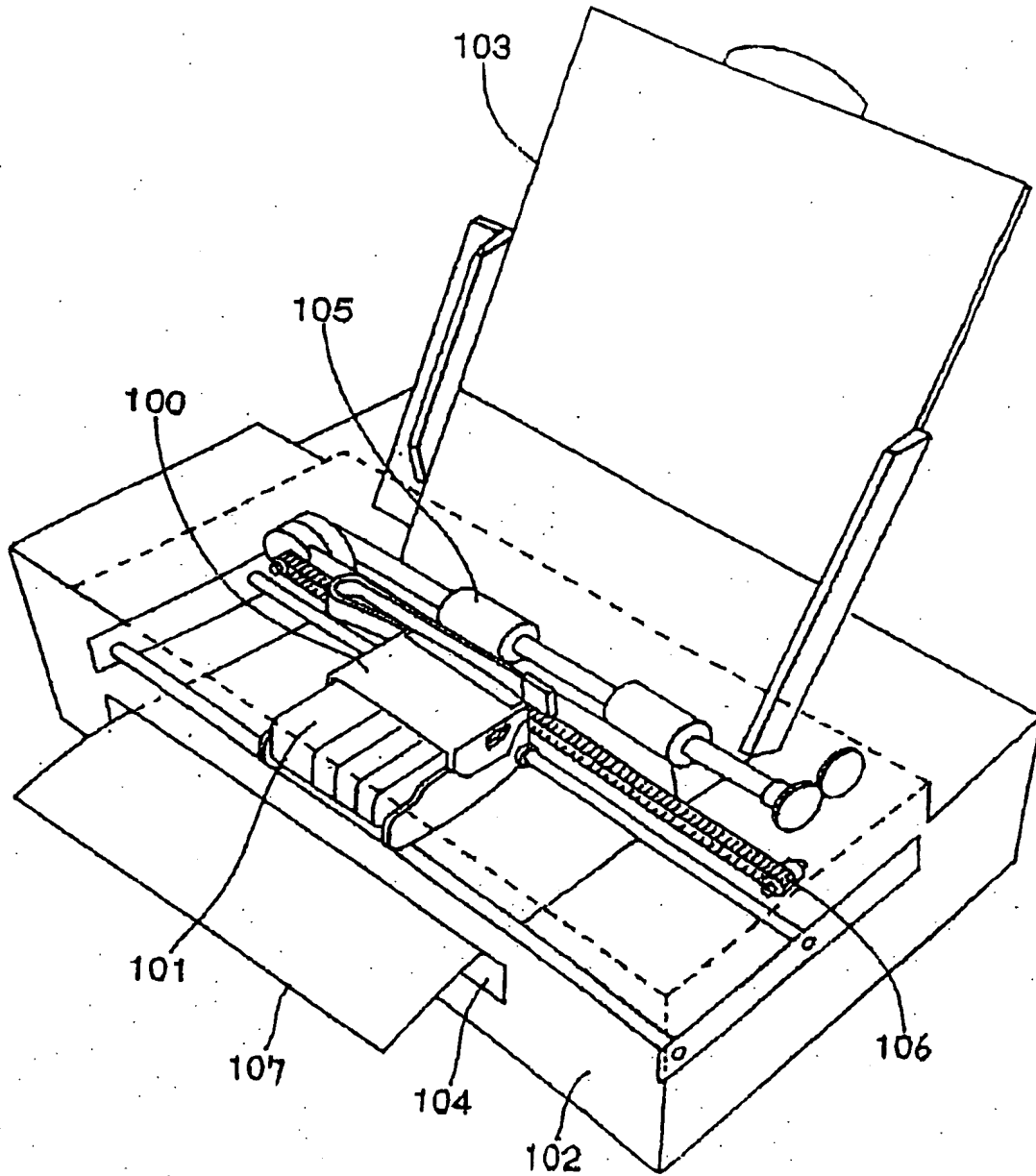


Fig. 2

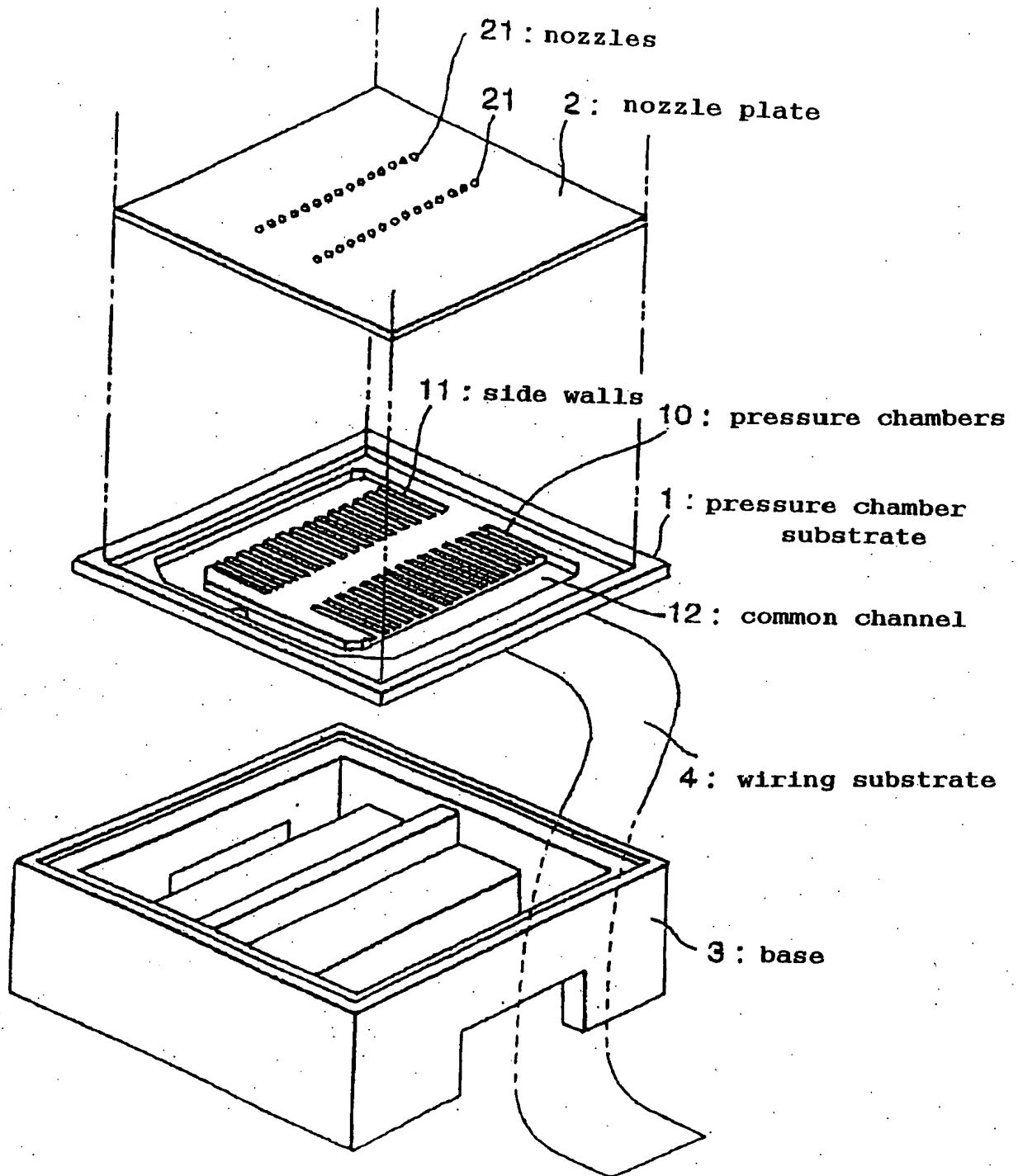
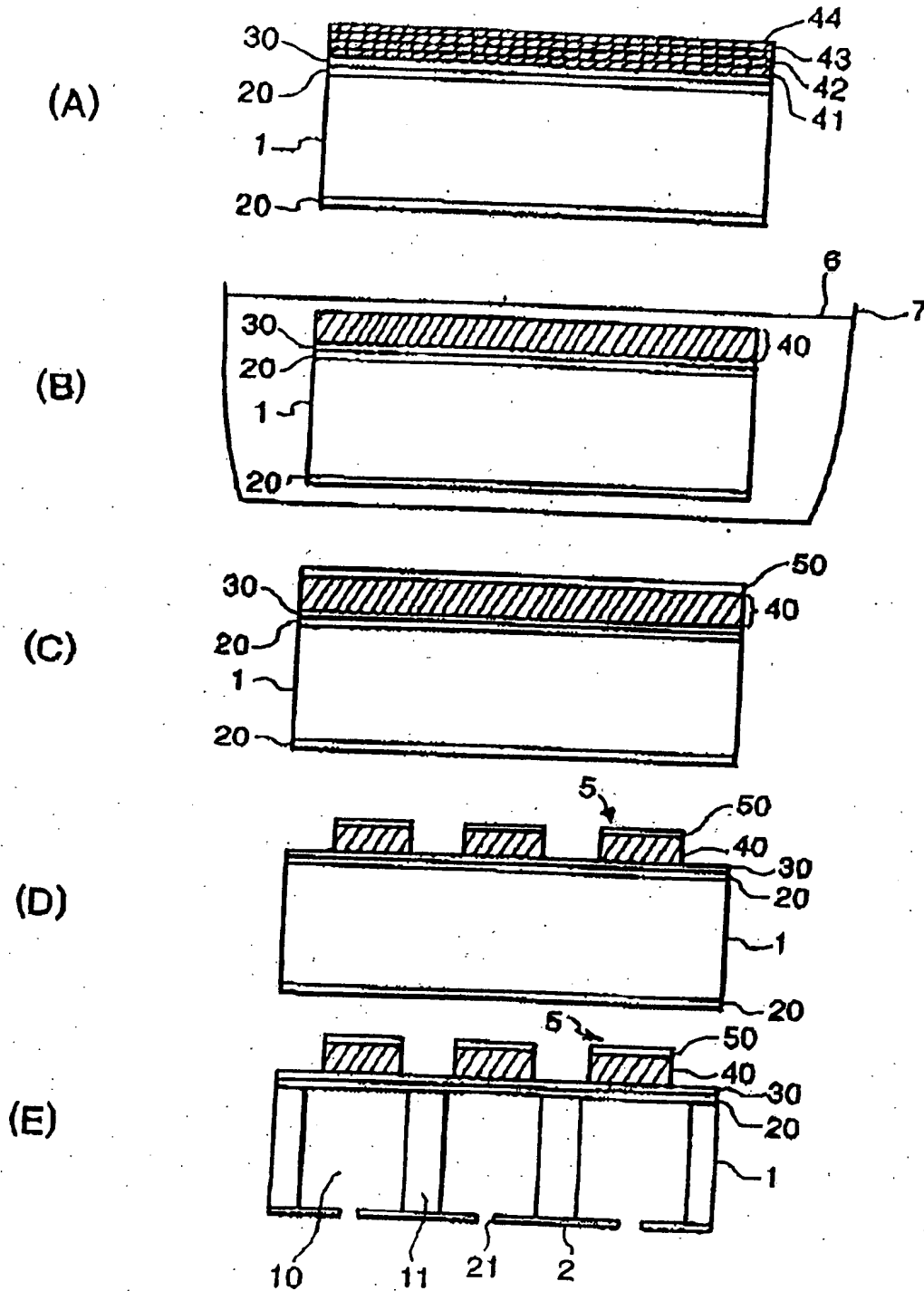
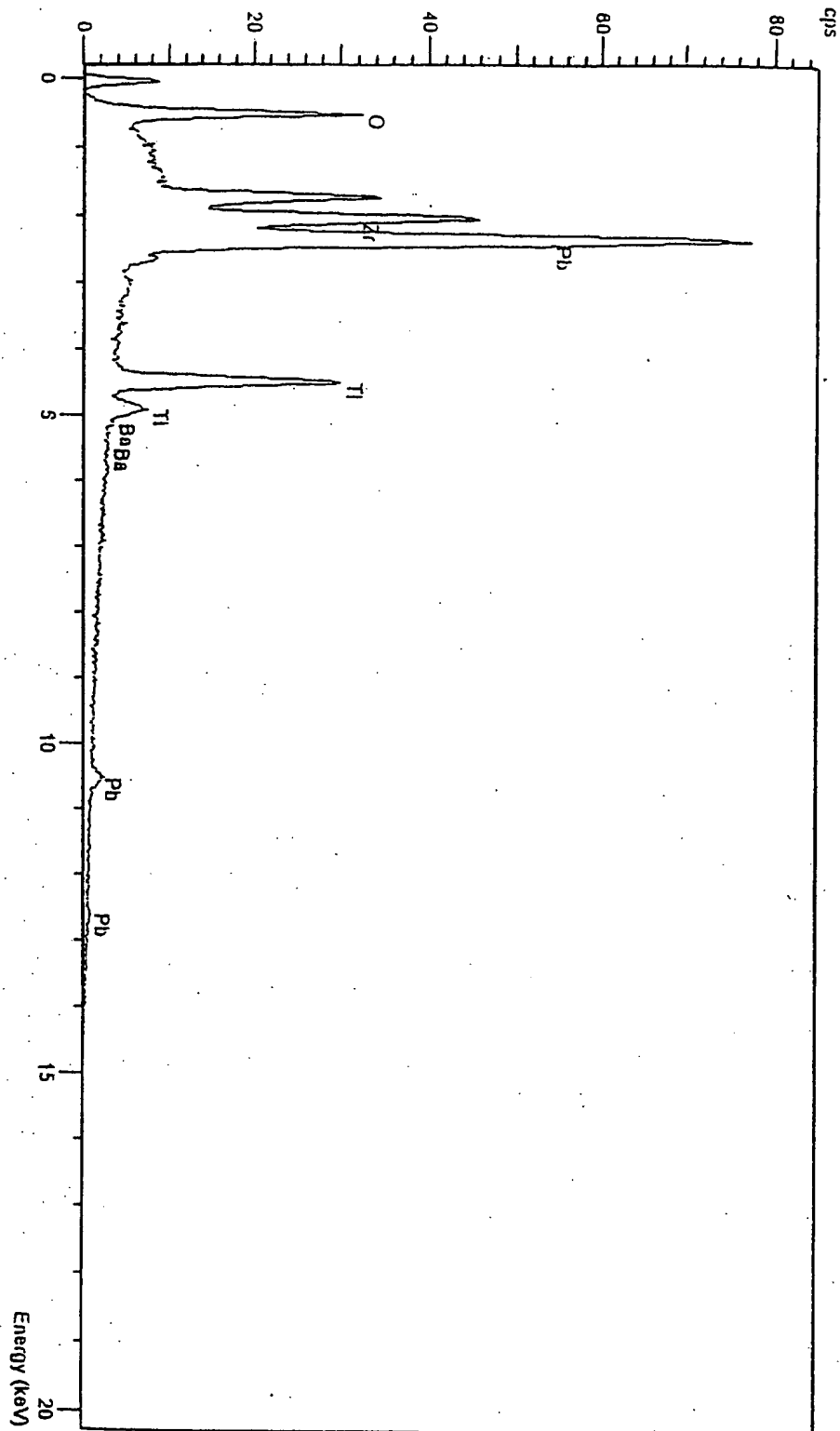


Fig. 3



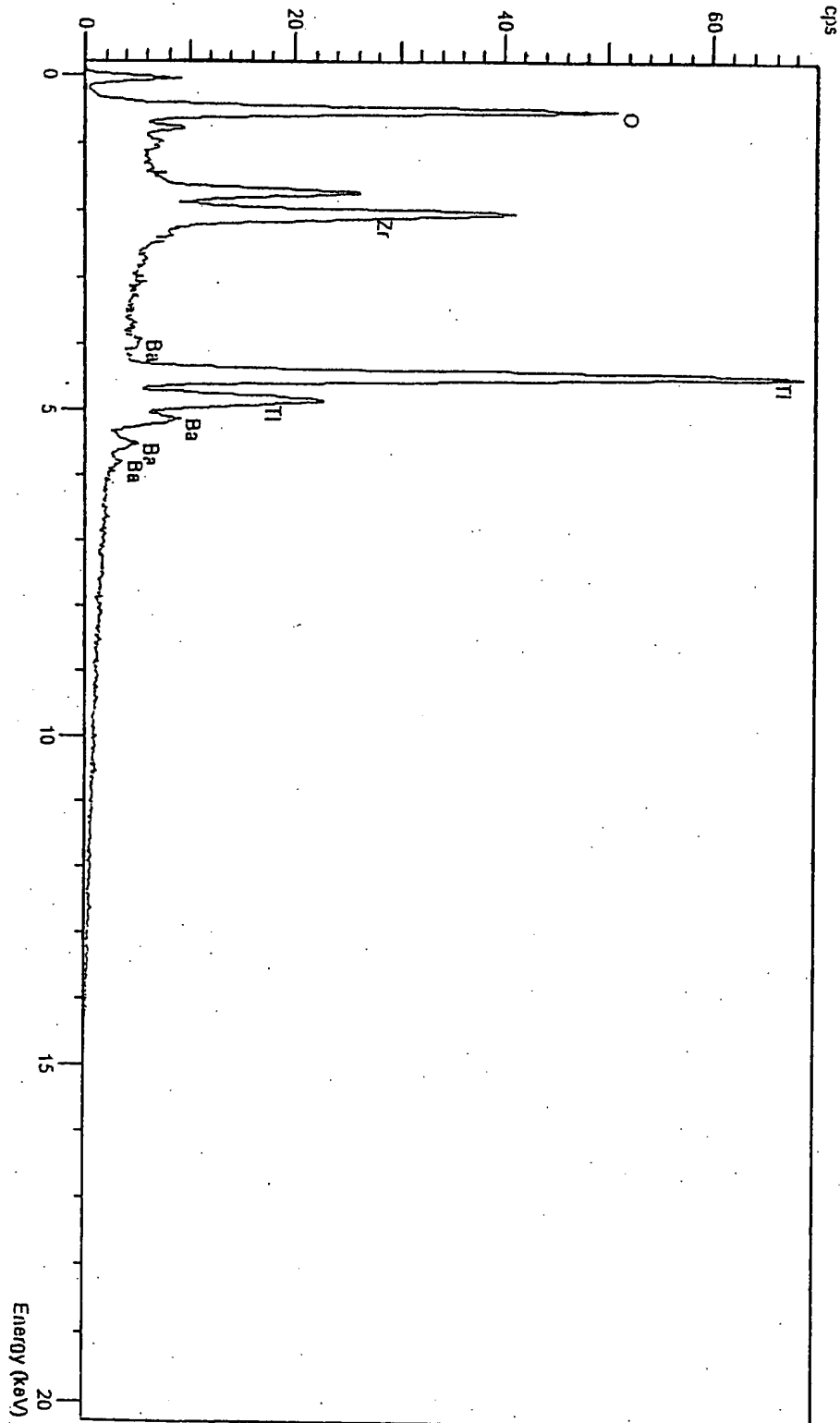
Appl. No. 10/050,586; Filed: January 18, 2002
 Dkt. No. 1089.0350001; Group Art Unit: 2834
 Inventors: Qiu et al.; Tel: 202/371-2600
 Title: Piezoelectric Element and Method of Manufacturing
 Same

Fig. 4



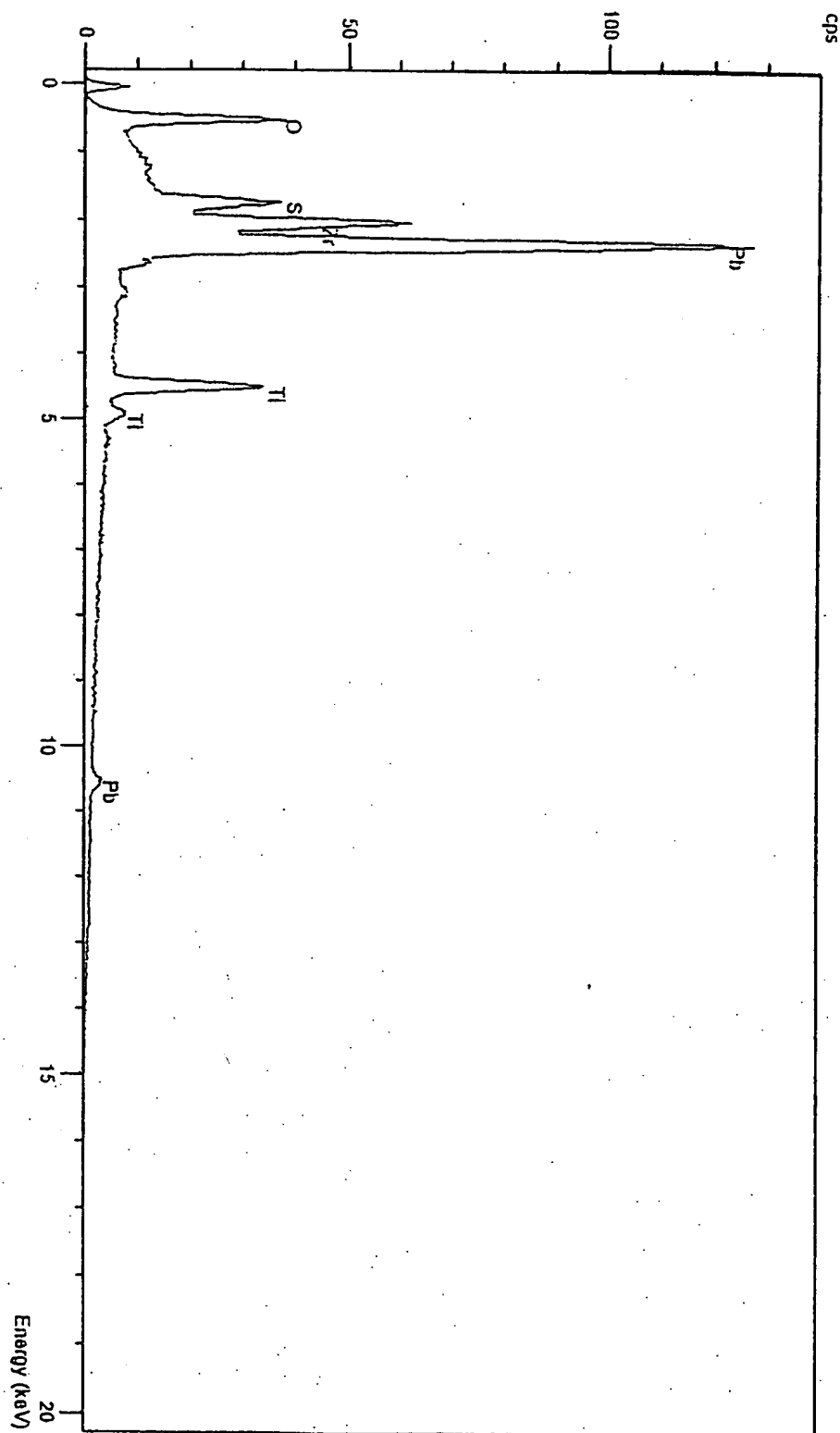
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Fig. 5

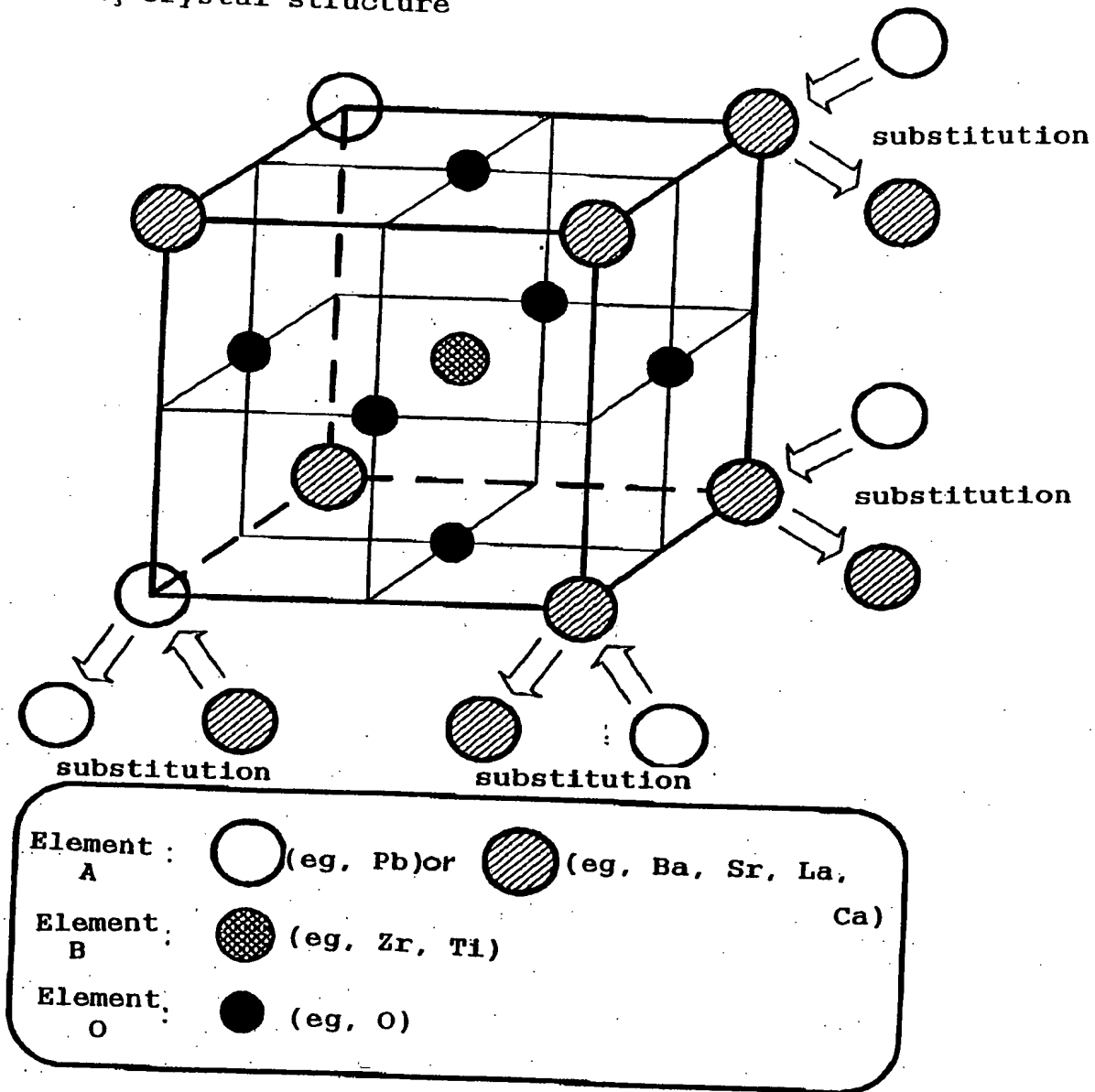


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 Inventors: Qiu et al.; Tel: 202/371-2600
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Fig. 6

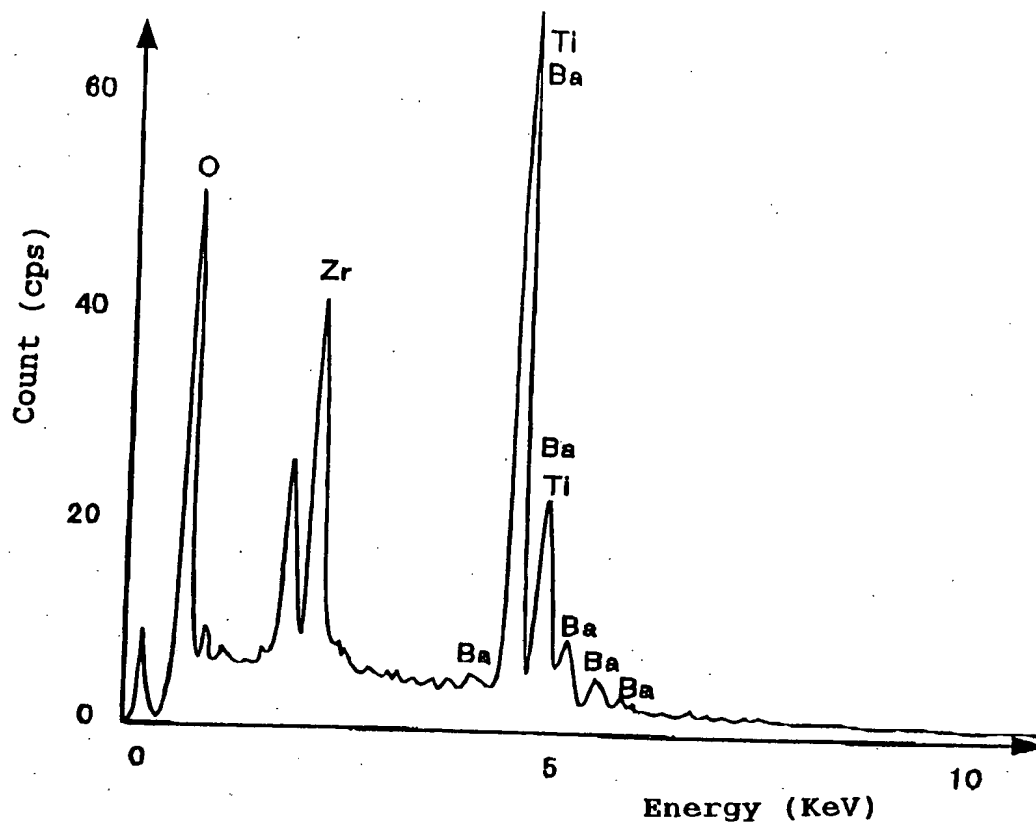


ABO₃ crystal structure



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Fig. 8



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Fig. 9

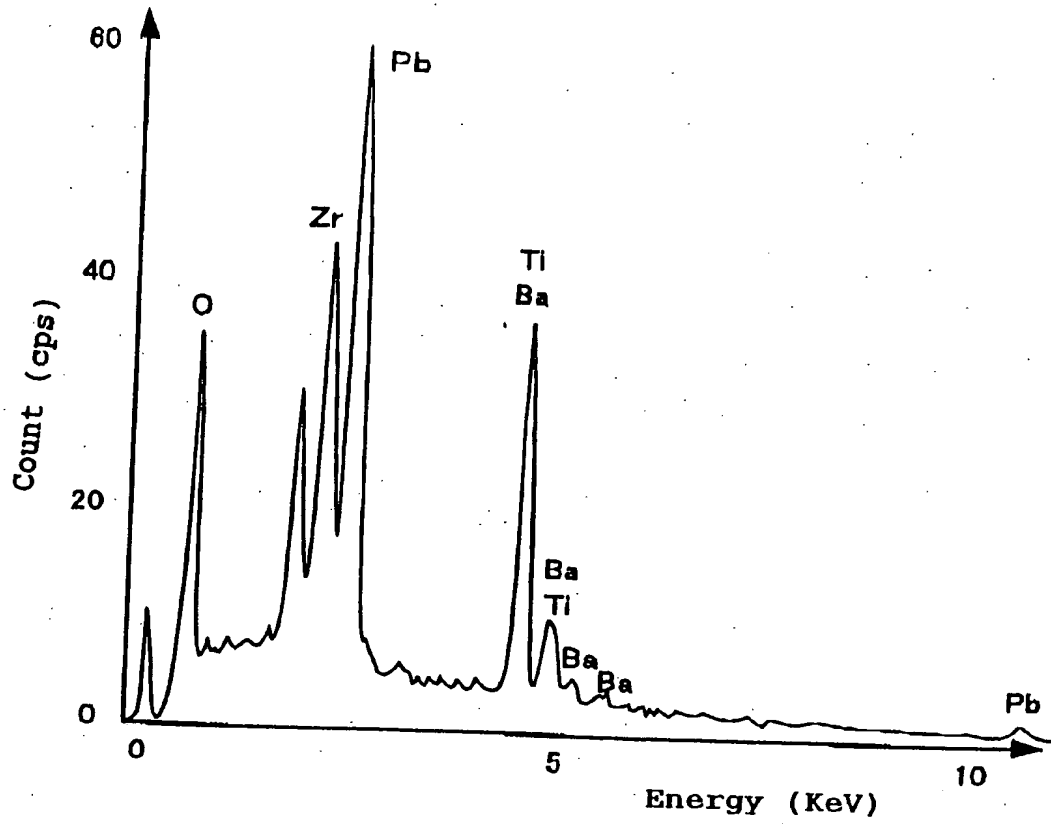
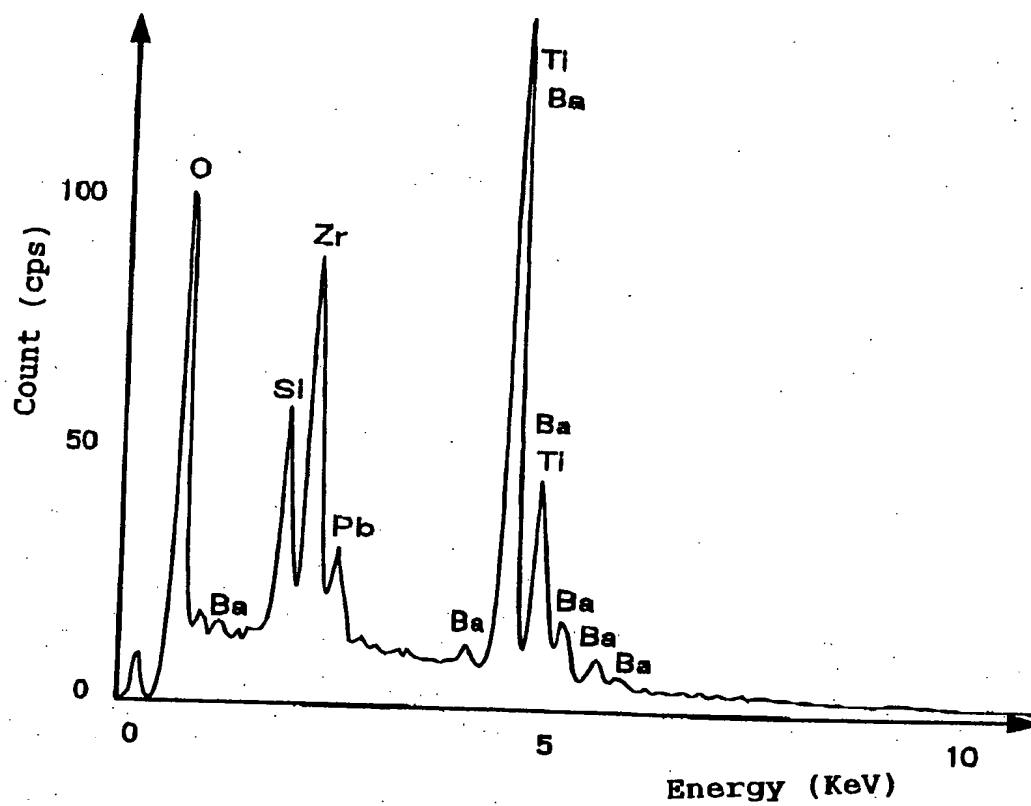
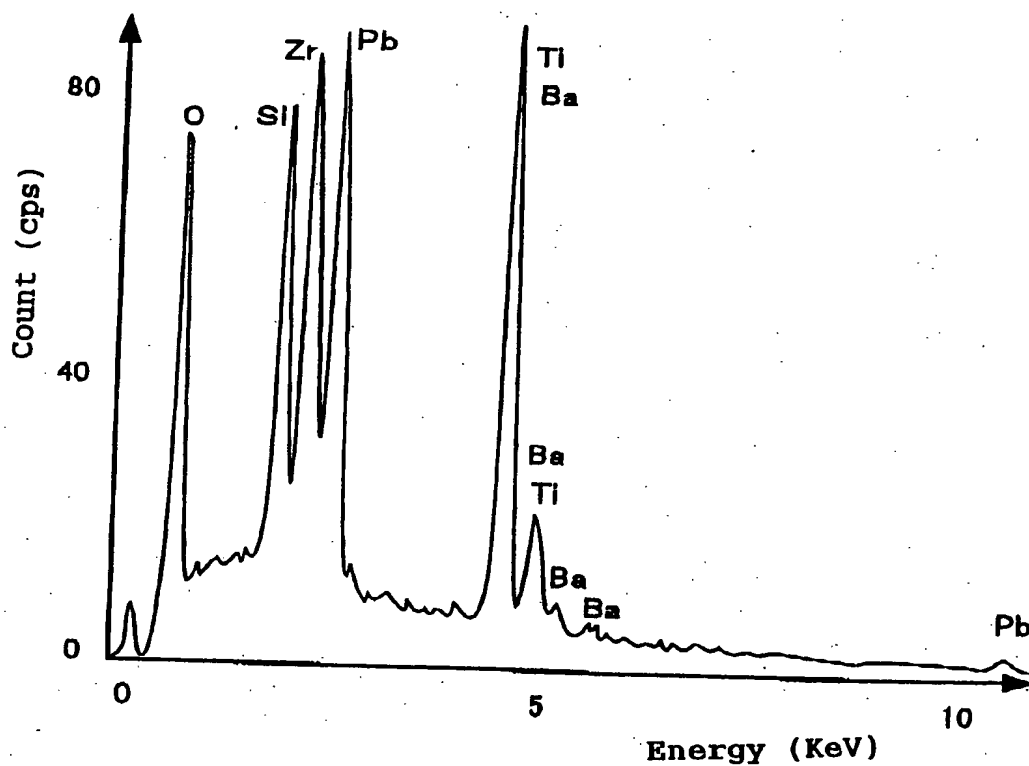


Fig. 10



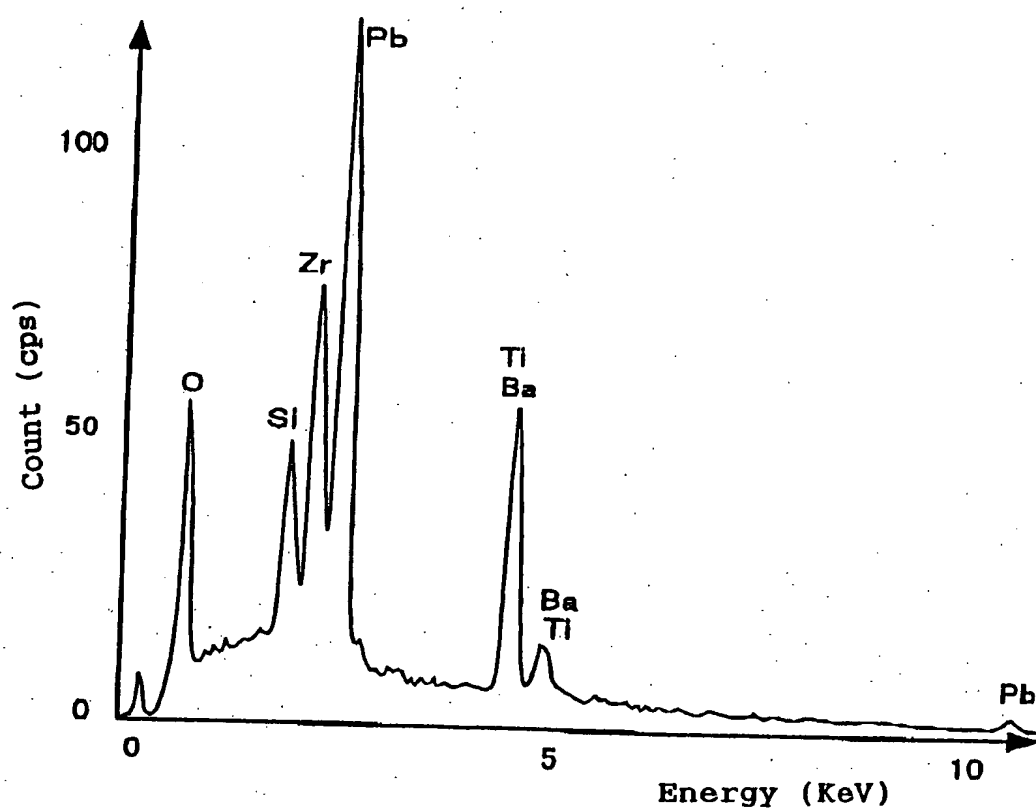
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Fig. 11



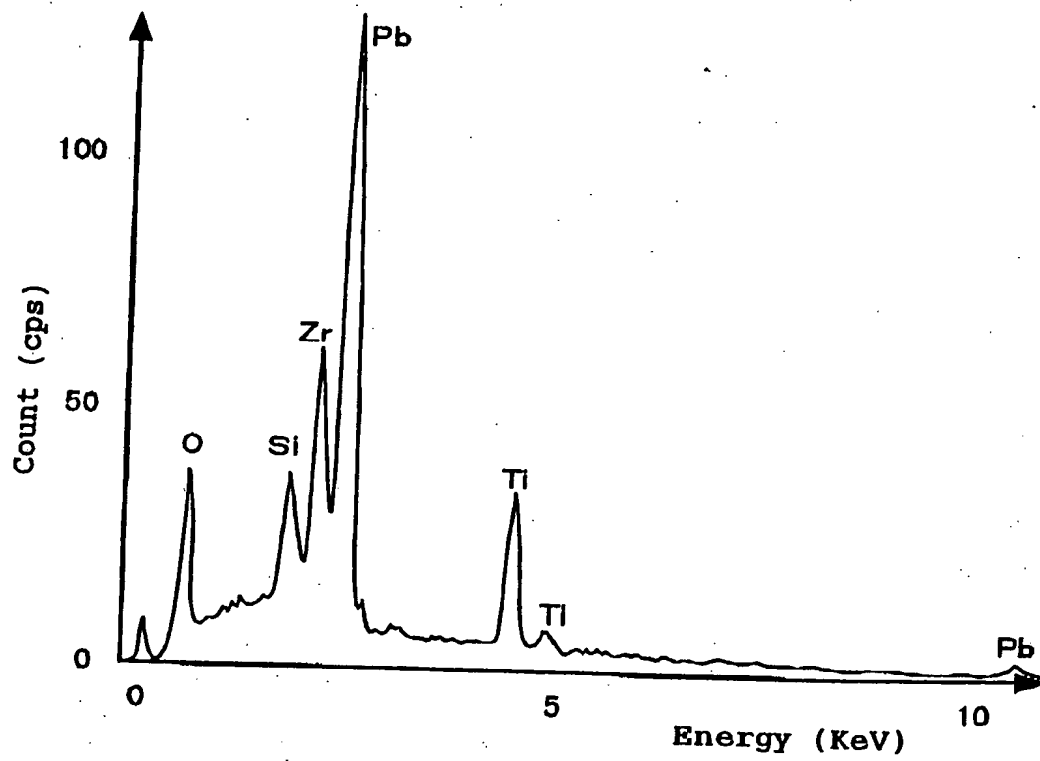
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Fig. 12



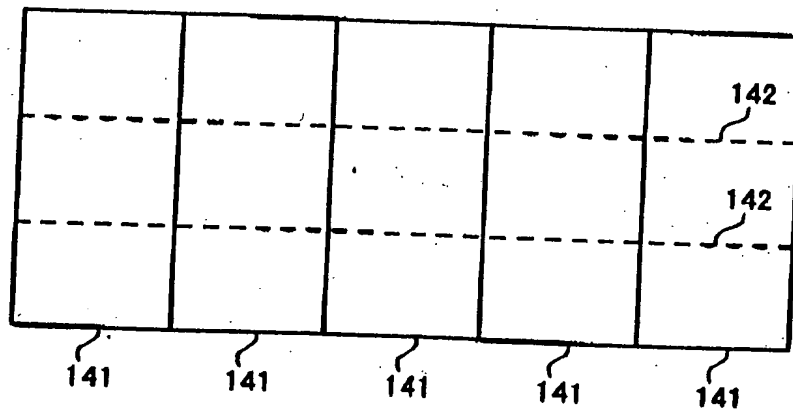
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Fig. 13



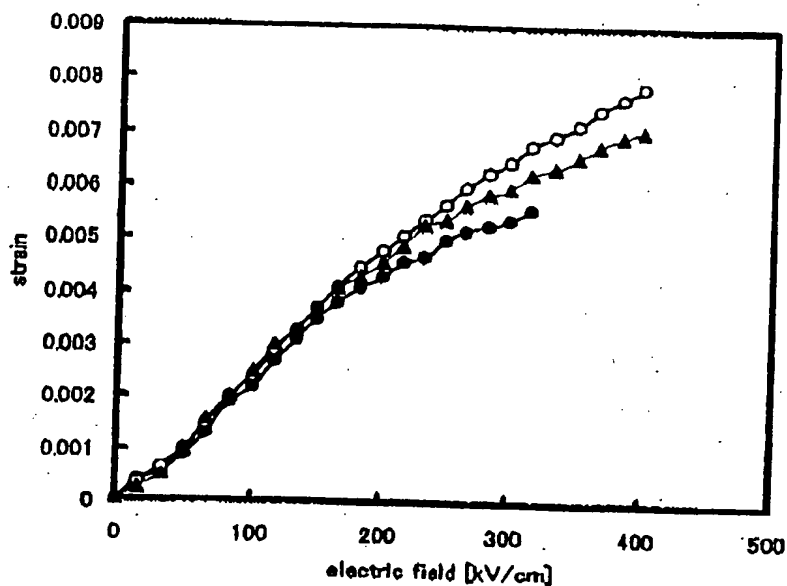
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Fig. 14



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Fig. 15



Electric field strength dependence of strain

●—● dislocation: 4 layers
▲—▲ layers 3 layers
○—○ 1 layer

Note: Ultimate strain indicates the strain limit at which the film breaks.